Appendix B

OU 3-13, Group 3, Other Surface Soils, Selection of Prioritization Criteria February 28, 2002

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This appendix presents the white paper that describes the process used to identify, validate, and weigh criteria used in grouping and prioritizing the OU 3-13, Group 3, Other Surface Soils, sites. The criteria and their ranking are the result of the value engineering session held February 19, 2002, and is based on the opinions of the evaluators, which may not be technically or factually correct. Prior to implementation of remediation at the specific sites, additional evaluation will be performed and more information may be collected to address any comments or issues.

Introduction

The OU 3-13 Scope of Work has mandated preparation of a Prioritization and Site Grouping Report that will prioritize the Group 3 sites into sets for remediation. This paper describes the process used to identify, validate, and weigh criteria for use in grouping and prioritizing the OU 3-13, Group 3, Other Surface Soils, sites. In order to assure effective planning and efficient utilization of resources, the 27 sites that comprise Group 3, and two sites in Group 2 that will be managed as Group 3 sites, will be separated into four to six sets. Each set will contain sites with similar characteristics and/or remediation goals and will be prioritized for remediation.

Summary

A Value Engineering (VE) Session was held on February 19, 2002 to formalize the criteria identification process. This type of session is a structured process used to brainstorm a solution to a given problem. In this case, an electronic decision support system, Criterium DecisionPlus® software, was utilized. Representatives included a multi-disciplinary team including, Health and Safety, Construction, Systems Engineering, Project Management (BBWI and DOE), Project Engineering, Environmental Affairs, and other technical personnel. A preliminary list of criteria based on that typically used for prioritization of remedial sites at DOE and other waste remediation sites was presented for consideration by the VE team. The initial criteria was then evaluated and reduced to a list of relevant, measurable, and mutually exclusive criteria. Next, a paired comparison of each criteria against the others was conducted. This effort resulted in a weighting of the criteria in order of relative importance. To enable ranking of the sites for each of the selected criteria, a rating system was developed using high, medium and low scoring measures. Data needs required to group the sites were then identified. This data will be gathered and a second VE session will be conducted using the data to perform the actual grouping of the sites into sets which can then be prioritized for remediation.

Criteria Identification and Refinement Process

Research was completed to determine the types of criteria that are used for prioritization of remedial sites at DOE and other waste remediation sites. The research resulted in a list of 28 criteria that were used on remediation activities at the INEEL as well as other sites within the DOE complex. The criteria identified in the initial research are shown in Table B-1. After drafting this first list of criteria, the next task was to pair down the list to include only those criteria that were relevant to the OU 3-13, Group 3 soils at the INEEL. As illustrated in Table B-1, grouping was used to reduce the 28 criteria to a more manageable number, for example several of the environmental issues were consolidated under the single heading of Environmental Risk Reduction.

Table B-1. Initial criteria and explanation of how the criteria was used.

Criteria	Disposition
Impact to natural resources such as wildlife and endangered species	Not relevant to this activity or grouped with Environmental Risk Reduction
Impact to water resources such as wetlands and drinking water supplies	Not relevant to this activity or grouped with Environmental Risk Reduction
Impact to cultural/social resources such as historic sites	Not relevant to this activity or grouped with Environmental Risk Reduction
Impact to land use resources such as existing open space, recreational areas, agricultural zones, roads, or municipal boundaries	Included in complexity (land use resources at INTEC) Changed in VE session to "INTEC Integration"
Worker safety	Used in draft list, changed in VE session to "Complexity of Worker Controls"
Reduction of toxicity, mobility and/or volume	Grouped w/ Environmental Risk Reduction
Rough order of magnitude costs	Used in draft list, VE session eliminated because cost is a part of all other criteria
Rough order of magnitude project durations	Used in draft list, later changed in VE session changed to "INTEC Integration"
Environmental risk due to remediation activities	Grouped w/ Environmental Risk Reduction
Future use of site	Used in draft and retained in final
Waste Disposal/Treatment issues	Used in draft list, later changed in VE session to "Waste Management"
Depth to Aquifer	Grouped w/ Environmental Risk Reduction
Distance to Nearest Drinking Water Well	Grouped w/ Environmental Risk Reduction
Soil Permeability	Grouped w/ Environmental Risk Reduction
Distance to Surface Water	Grouped w/ Environmental Risk Reduction
Source Quantity	Grouped w/ Environmental Risk Reduction
Toxicity/Persistence	Grouped w/ Environmental Risk Reduction
Water Solubility	Grouped w/ Environmental Risk Reduction
Potential threats to human health and the environment	Grouped w/ Environmental Risk Reduction
Stakeholder Considerations	Grouped w/ Environmental Risk Reduction
Physical Size of remediation area	Grouped with Duration, VE session changed to "INTEC Integration"
Preexisting remediation activities (cap)	Not relevant to this activity
Legal requirements/ Milestones	Used in draft list, determined in VE session to be not relevant to this activity
Complexity of remediation activity	Used in draft list, later changed in VE session to "INTEC Facility Infrastructure"
Waste treatment disposal issues	Used in draft list, later changed in VE session to "Waste Management"
Contaminant risk	Grouped w/ Environmental Risk Reduction
Schedule	Used in draft list, later changed in VE session to "INTEC Integration"
Transportation Issues	Not mutually exclusive (affects all equally)

The ten draft criteria found in Table B-2 were evaluated by the interdisciplinary team in a VE session. The VE process incorporates a structured discussion that requires group consensus for each of the criteria. As a result of this discussion, the list was further reduced to six relevant, measurable, and mutually exclusive criteria that were agreed upon by the team. The scoring measures, or data needs for each of the criteria were brainstormed and agreed upon. To enable ranking of the sites for each of the selected criteria, a rating system was developed using a ten-point scale grouped into high (8-10), medium (4-7) and low (1-3) scoring measures. This scoring method provides structure to the scoring process and still allows for flexibility within a measure that is not available with a strict high, medium and low selection.

Table B-2. Ten draft criteria carried forward from the initial list as a starting point for the further evaluation by the project team.

Draft Soils Prioritization Criteria
Worker Safety - The risk to workers conducting the remediation is driven by the internal hazards such as contamination levels present at the area, external hazards such as electrical utilities, high pressure lines, or other external hazards, the extent of labor or hands on work required for the remediation, and the complexity of the remediation process.
Environmental Risk Reduction – The potential for reduction of environmental risk posed by the contaminated site.
Complexity – This includes the need for planning, startup measures, and coordination of interfaces and the degree of existing INTEC structures and utilities within the proximity of the remediation area.
Milestones/ Legal requirements – External milestones or legal requirements could drive the removal priorities. Sites where these milestones dictate the remediation schedule must be prioritized higher than those with no external or internal milestones or legal requirements.
Costs – Cost is directly tied to duration and complexity so this may be a criterion that is not evaluated.
Future Use of Site – Consideration of possible future uses of the site can dictate priorities for remediation. Sites having an identified future use may be considered for remediation sooner than those that have no anticipated or identified future use. These criteria could be associated with internal or external milestones.
Waste Treatment/Disposal Issues –Treatment/disposal issues should be identified that may add complexity to the remediation task. Grouping of the sites with similar treatment and disposal operations will reduce treatment and disposal startup measures.
Duration – The time required to complete the removal project. Several shorter duration projects could be completed in a similar time frame as one long duration project. It may be desirable to remediate short duration projects first.
Contaminant Risk– Removal efficiencies may be considered in the prioritization effort. Sites where removal efficiencies are well defined and confidence is high should be remediated ahead of those sites where poor efficiencies are anticipated. This approach will allow some removals to proceed earlier than others that may benefit by additional research, experience, or planning.
Schedule – Schedule coordination with other projects at INTEC could be important in the prioritization of the remediation. Those sites with known schedule conflicts or that may be difficult to coordinate with existing schedules may be delayed until existing conflicts are resolved.

Shown below are the final six criteria, as well as the scoring measures for each criterion. The scoring measures also used to define the data needed for applying the criteria to the 29 soil sites. The higher the score for each site, the more favorable with respect to the given criteria.

Future Use of Site - Consideration of possible future uses of the site not currently in operation, including coordination with D&D&D. Sites having an identified future use may be considered for remediation sooner than those that have no anticipated or identified future use. This criterion could be associated with internal or external milestones.

Scoring:

1-3	No Identified Use
4-7	Long term uses planned from 11 to 25 years
8-10	Planned future use identified within next 10 years

Environmental Risk Reduction - The potential for reduction of environmental risk posed by the contaminated site including potential for contaminate migration via all pathways.

Scoring:

1-3	Low ratio of ROD Contaminants of Concern (COC) compared to the total
4-7	Medium ratio of ROD COCs compared to the total
8-10	High ratio of ROD COCs compared to the total

INTEC Facility Infrastructure - Site accessibility including existing INTEC structures and utilities within the proximity of the remediation area.

Scoring:

1-3	Greater than 30 obstructions/interference's in the area
4-5	21 to 30 obstructions
6-7	Greater than three and less than 20 obstructions/interferences
8-10	Three or less obstructions/interference's in the area

Complexity of Worker Controls - Degree of necessary controls due to toxicity of materials, concentration of contaminant, and physical hazards.

Scoring:

1-3	Anticipated at or above the exposure limit or high radiological (>5rem at 1 foot) or significant engineering or administrative controls
4-5	Anticipated in excess of action limits but less than exposure limits and special controls (what are the radiological controls?)
6-7	Anticipated below action level with special controls
8-10	Anticipated below action levels for radiological and non- radiological contaminants and no special controls

Waste Management - Sites that will require additional handling prior to disposal. (Based on WAC requirements)

Scoring:

1-3	Waste known to require additional waste management
4-5	Sites suspected to have large quantities of waste requiring additional management
6-7	Sites with potential for minimal additional waste management
8-10	No identified waste management issues (soil only site)

INTEC Integration - Impact on day-to-day operations/ongoing mission or project activities.

Scoring:

1-3	High traffic area or ongoing operations in this area
4-7	Moderate traffic or intermittent operations
8-10	No ongoing operations in this area

The next task in the VE session was to apply weightings to the criteria. The electronic decision support system employeed for this meeting used the Criterium DecisionPlus® software to assign weights using a Paired Comparison technique. Paired Comparison analysis helps work out the importance of a number of options relative to each other, and provides a weight factor to each of the criteria. Paired Comparison analysis relies on the concensis of the group to weigh up the relative importance of the different courses of action. This process is particularily useful in applications such as this, where priorities are not clear or are competing in importance. The weighting scores are based on the following definitions:

1 – No Difference
2 – Barely More Important
3 – Weakly More Important
4 – Moderately More Important
5 – Definitely More Important
6 – Strongly More Important
7 – Very Strongly More Important
8 - Critically More Important
9 - Absolutely More Important

Notes taken from the discussion illustrate the rational used to determine why certain criteria ranked higher than the others on the paired rankings.

Environmental Risk Reduction vs. INTEC Infrastructure –
Environmental Risk Reduction is definitely (5) more important - we can deal with the infrastructure issues - it is more important to get the contamination out of the ground.

Environmental Risk Reduction vs. Future Use of Site -
Future use of the site is weakly (3) more important because if there is an identified future use, the contamination must be removed to allow progress.

Environmental Risk Reduction vs. Waste Management –
Environmental Risk Reduction is definitely (5) more important -our goal is to clean up the site, waste management is part of making it happen.

Environmental Risk Reduction vs. Complexity of Worker Controls -
Environmental Risk is strongly (6) more important than Complexity of worker controls - we can handle shoring, respirators, etc. We are protecting environment and the worker - we will protect the worker first.

INTEC Integration vs. Future Use of Site -
Future use of site is strongly (6) more important – Remediation makes the site available for future needs, we can work around the integration issues - if there is future use the integration will be easier.

INTEC Integration vs. Waste Management -
Waste management is moderately (4) more important – from a cost perspective, waste management potentially is more costly than dealing with integration issues.

INTEC Integration vs. Complexity of Worker Controls –
Worker controls are definitely (5) more important - deals with safety of workers as opposed to scheduling an outage.

Future Use of Site vs. Waste Management -
Future use of site is definitely (5) more important - idea that we need to clean up so they can continue with programs – waste management is an internal driver that can be managed.

Future Use of Site vs. Complexity of Workers Controls -
Future use is strongly (6) more important – need to clean up so other programs can continue – can deal with providing a safe work environment while remediating.

Waste Management vs. Complexity of Worker Controls -
Worker controls is moderately (4) more important - waste management is cost issue – worker controls is also a cost issue but includes worker safety.

After consideration was given to each of the criteria and group consensus was obtained for the relative importance of each of the criteria, the following rankings were applied for the paired comparison:

- Environmental Risk Reduction was defiantly more important (5) than INTEC Facility Infrastructure
- INTEC Facility Infrastructure was very strongly more important (7) than INTEC Integration
- Future use of Site was moderately more important (4) than INTEC Facility Infrastructure
- INTEC Facility Infrastructure was moderately more important (4) than Waste Management
- INTEC Facility Infrastructure was weakly more important (3) than Complexity of Worker Controls
- Environmental Risk Reduction was very strongly more important (7) than INTEC Integration
- Future Use of Site was weakly more important (3) than Environmental Risk Reduction
- Environmental Risk Reduction was defiantly more important (5) than Waste Management
- Environmental Risk Reduction was strongly more important (6) than Complexity of work Controls
- Future Use of Site was strongly more important (6) than INTEC Integration

- Waste Management was moderately more important (4) than INTEC Integration
- Complexity Of worker Controls was defiantly more important (5) than INTEC Integration
- Future Use of Site was defiantly more important (5) than Waste Management
- Future Use of Site was strongly more important (6) than Complexity of Worker Controls
- Complexity of Worker Controls was moderately more important (4) than Waste Management

Based on the above rankings, computations by the Criterium DecisionPlus® software provided the following weightings for the criteria:

Criteria	Weight
Future Use of Site	0.401
Environmental Risk Reduction	0.299
INTEC Facility Infrastructure	0.137
Complexity of Worker Controls	0.085
Waste Management	0.051
INTEC Integration	0.027

Path Forward

Having identified the criteria and the data needs to support the criteria and having weighted the criteria, the next step in the prioritization process is to gather the available data necessary for the analysis from each of the soil sites. Once the available site data is identified, the site data will be evaluated to allow the actual grouping of the sites into sets, which will then be prioritized, for remediation. Confidence values such as those shown below will be used to identify the degree of uncertainty related to the available data for each site.

Confidence Values

Confidence Value	Description
A	**Information is known**, either from sampling results, research, or because it is accepted knowledge.
B	**A best estimate**, based on at least some knowledge of information relevant to the factor being considered.
C	**An educated guess**, based on little or no information

Prior to the next VE session scheduled for early April, available site data will be gathered and the scoring measures for each of the criteria will be applied to the sites. This process will provide a proposed grouping and ranking for remediation of the 29 soil sites in consideration. At the completion of the VE session we should have a clear, agreed upon, and documented grouping and ranking for remediation of the sites.

Appendix C

Contaminant Mass and Weighted Average Contributions for Each Site

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Contaminant Mass and Weighted Average Contributions for Each Site

This appendix presents contaminant mass and weighted average contributions for each site. The ranking for the individual sites is based on the opinions of the evaluators, which may not be technically or factually correct. Prior to implementation of remediation at the specific sites, additional evaluation will be performed and more information may be collected to address any comments or issues.

Table C-1 Design Inventory (concentration) for the Inorganic Contaminants to be Disposed in the INEEL CERCLA Disposal Facility.

Inorganic Conc. (mg/kg)			Ranking	Mercury	X Greater than RG	Contaminant Mass (kg)	% of Total Mass)	Am-241	X Greater than RG	Contaminant Mass (kg)	% of Total Mass)	Cs-137	X Greater than RG	Contaminant Mass (kg)	% of Total Mass)	Eu-152	X Greater than RG	Contaminant Mass (kg)	% of Total Mass)	Eu-152	X Greater than RG	Contaminant Mass (kg)	% of Total Mass)	Pu-238	X Greater than RG	Contaminant Mass (kg)	% of Total Mass)	Sr-90	X Greater than RG	Contaminant Mass (kg)	% of Total Mass)
Soil Risk-Based Remediation Goal				2.3E+01				2.9E+02				2.3E+01				2.7E+02				5.2E+03				6.7E+02				2.2E+02			
	yd^3	kg																													
CPP-01/04/05 [a]	4,260	4,885,504	8,8,8	NA	NA	NA	NA	2.2E+00	<RG	0.01	0.09%	2.1E+04	906.6	101.87	0.89%	2.0E+04	75.5	99.62	21.73%	3.2E+04	6.2	156.53	40.28%	1.0E+01	<RG	0.05	0.05%	2.0E+04	87.5	95.36	0.89%
CPP-03	10,940	12,546,342	4	NA	NA	NA	NA	6.1E-03	<RG	0.00	0.00%	3.5E+01	1.5	0.44	0.00%	1.4E+00	<RG	0.02	0.00%	8.9E-02	<RG	0.00	0.00%	1.7E-02	<RG	0.00	0.00%	3.3E+01	<RG	0.42	0.00%
CPP-08/09	3,100	3,555,179	5,5	NA	NA	NA	NA	1.8E-01	<RG	0.00	0.01%	1.1E+03	45.8	3.74	0.03%	4.1E+00	<RG	0.01	0.00%	2.7E+00	<RG	0.01	0.00%	5.2E-01	<RG	0.00	0.00%	9.9E+02	4.4	3.50	0.03%
CPP-10	422	483,963	5	NA	NA	NA	NA	2.0E-01	<RG	0.00	0.00%	1.2E+03	50.4	0.56	0.00%	8.7E+00	<RG	0.00	0.00%	5.2E+00	<RG	0.00	0.00%	5.7E-01	<RG	0.00	0.00%	1.1E+03	4.9	0.53	0.00%
CPP-11	1,491	1,709,927	4	5.0E-02	<RG	0.09	0.00%	8.7E-03	<RG	0.00	0.00%	5.0E+01	2.2	0.09	0.00%	2.7E-04	<RG	0.00	0.00%	1.1E+00	<RG	0.00	0.00%	2.5E-02	<RG	0.00	0.00%	4.7E+01	<RG	0.08	0.00%
CPP-13	4,022	4,612,558	6	9.1E-01	<RG	4.20	0.11%	4.8E-01	<RG	0.00	0.02%	2.8E+03	120.8	12.81	0.11%	1.5E-02	<RG	0.00	0.00%	1.8E+01	<RG	0.08	0.02%	1.4E+00	<RG	0.01	0.01%	2.6E+03	11.7	11.99	0.11%
CPP-14	11,046	12,667,906	1	4.0E+00	<RG	50.67	1.31%	1.1E+00	<RG	0.01	0.12%	3.1E+00	<RG	0.04	0.00%	1.7E-05	<RG	0.00	0.00%	7.7E-03	<RG	0.00	0.00%	1.5E-03	<RG	0.00	0.00%	2.9E+00	<RG	0.04	0.00%
CPP-19	3,780	4,335,025	9	1.5E-01	<RG	0.65	0.02%	2.0E+00	<RG	0.01	0.07%	1.8E+05	7915.9	789.26	6.88%	8.3E+04	306.4	358.64	78.25%	4.9E+04	9.4	212.29	54.63%	8.9E+01	<RG	0.39	0.35%	1.7E+05	764.3	738.81	6.88%
CPP-34a/b	27,352	31,368,149	5	6.0E-01	<RG	18.82	0.49%	1.5E-01	<RG	0.00	0.04%	8.7E+02	37.7	27.18	0.24%	4.7E-03	<RG	0.00	0.00%	2.2E+00	<RG	0.07	0.02%	5.1E+00	<RG	0.16	0.14%	8.1E+02	3.6	25.44	0.24%
CPP-35	311	356,665	6	7.3E+00	<RG	2.61	0.07%	1.2E+00	<RG	0.00	0.00%	2.5E+03	107.2	0.88	0.01%	1.3E-02	<RG	0.00	0.00%	5.7E+00	<RG	0.00	0.00%	1.2E+01	<RG	0.00	0.00%	2.3E+03	10.4	0.82	0.01%
CPP-36/91	12,520	14,358,337	10, 9	4.6E+00	<RG	65.56	1.70%	7.5E+02	2.6	10.80	93.74%	7.3E+05	31866.7	10523.72	91.74%	3.9E+00	<RG	0.06	0.01%	1.4E+03	<RG	19.57	5.04%	7.6E+03	11.4	109.22	98.80%	6.9E+05	3076.6	9851.04	91.74%
CPP-37A [b]	10,889	12,487,487	1	9.6E-01	<RG	11.99	0.31%	9.8E-01	<RG	0.01	0.11%	1.7E+00	<RG	0.02	0.00%	8.9E-06	<RG	0.00	0.00%	4.2E-03	<RG	0.00	0.00%	1.1E-01	<RG	0.00	0.00%	1.6E+00	<RG	0.02	0.00%
CPP-37B	102,439	117,479,968	2	9.0E-02	<RG	10.57	0.27%	1.1E+00	<RG	0.13	1.09%	2.1E+00	<RG	0.25	0.00%	1.1E-05	<RG	0.00	0.00%	5.3E-03	<RG	0.00	0.00%	1.8E-01	<RG	0.02	0.02%	2.0E+00	<RG	0.23	0.00%
CPP-37C	204,877	234,959,935	3	9.0E-02	<RG	21.15	0.55%	1.1E+00	<RG	0.25	2.18%	2.1E+00	<RG	0.50	0.00%	1.1E-05	<RG	0.00	0.00%	5.3E-03	<RG	0.00	0.00%	1.8E-01	<RG	0.04	0.04%	2.0E+00	<RG	0.46	0.00%
CPP-41A	104	118,931	1							0.00				0.00				0.00				0.00				0.00				0.00	
CPP-44	89	102,068	1	5.0E+00	<RG	0.51	0.01%	1.4E-04	<RG	0.00	0.00%	8.2E-01	<RG	0.00	0.00%	4.4E-06	<RG	0.00	0.00%	2.1E-03	<RG	0.00	0.00%	4.0E-04	<RG	0.00	0.00%	7.7E-01	<RG	0.00	0.00%
CPP-48	296	339,462	1	9.5E-01	<RG	0.32	0.01%	9.3E-03	<RG	0.00	0.00%	5.4E+01	2.3	0.02	0.00%	2.9E-04	<RG	0.00	0.00%	1.3E-01	<RG	0.00	0.00%	8.4E-02	<RG	0.00	0.00%	5.0E+01	<RG	0.02	0.00%
CPP-55	370	424,328	1	5.3E+00	<RG	2.25	0.06%	1.4E-04	<RG	0.00	0.00%	8.2E-01	<RG	0.00	0.00%	4.4E-06	<RG	0.00	0.00%	2.1E-03	<RG	0.00	0.00%	4.0E-04	<RG	0.00	0.00%	7.7E-01	<RG	0.00	0.00%
CPP-67 [c]	99,260	113,834,544	6	3.0E+01	1.3	3436.24	89.05%	2.4E+00	<RG	0.27	2.38%	4.1E+01	1.8	4.69	0.04%	2.2E-04	<RG	0.00	0.00%	1.0E-01	<RG	0.01	0.00%	4.2E+00	<RG	0.48	0.44%	3.9E+01	<RG	4.39	0.04%
CPP-68 [c]	67	76,455	1							0.00				0.00				0.00				0.00				0.00				0.00	
CPP-92	1,370	1,571,160	7	4.6E+00	<RG	7.17	0.19%	9.3E+00	<RG	0.01	0.13%	3.1E+03	136.9	4.95	0.04%	1.7E-02	<RG	0.00	0.00%	7.9E+00	<RG	0.01	0.00%	1.1E+02	<RG	0.18	0.16%	2.9E+03	13.2	4.63	0.04%
CPP-93	2,667	3,058,601	6	7.4E+01	3.2	225.75	5.85%	1.4E-04	<RG	0.00	0.00%	8.2E-01	<RG	0.00	0.00%	4.4E-06	<RG	0.00	0.00%	2.1E-03	<RG	0.00	0.00%	4.0E-04	<RG	0.00	0.00%	7.7E-01	<RG	0.00	0.00%
CPP-97	1,500	1,720,248	4	1.0E-01	<RG	0.17	0.00%	1.7E-01	<RG	0.00	0.00%	6.7E+01	2.9	0.12	0.00%	3.6E-04	<RG	0.00	0.00%	2.9E-01	<RG	0.00	0.00%	3.5E-01	<RG	0.00	0.00%	6.3E+01	<RG	0.11	0.00%
CPP-98 [e]	250	286,708	4	1.0E-01	<RG	0.03	0.00%	1.2E-02	<RG	0.00	0.00%	6.7E+01	2.9	0.02	0.00%	3.6E-04	<RG	0.00	0.00%	1.7E-01	<RG	0.00	0.00%	3.3E-02	<RG	0.00	0.00%	6.3E+01	<RG	0.02	0.00%
CPP-99 [e]	126	144,501	4	1.0E-01	<RG	0.01	0.00%	1.2E-02	<RG	0.00	0.00%	6.7E+01	2.9	0.01	0.00%	3.6E-04	<RG	0.00	0.00%	1.7E-01	<RG	0.00	0.00%	3.3E-02	<RG	0.00	0.00%	6.3E+01	<RG	0.01	0.00%
						3858.75	1.00			11.52	1.00			11471.17	1.00			458.34	1.00			388.59	1.00			110.56	1.00			10737.93	1.00

Footnotes:
a) Site CPP-01/04/05 was combined with data from sites CPP-01 and CPP-04/05 from the CWID.
b) Site CPP-37A was combined with the data from site CPP-37 from the CWID.
c) Site CPP-67 was combined with the data from site CPP-67 Pond from the CWID.
d) Site CPP-69 is assumed to be the same as site CPP-11.
e) Sites CPP-98 and CPP-99 are assumed to be same as site CPP-97.
f) Contaminant concentrations were calculated based on Appendix A of the CWID Report.
g) Data based on the RI/BRA (DOE/ID-10556, November 1997).

Appendix D

Radiological and Chemical Concentrations, and Physical Hazards Ranking

Appendix D

Radiological and Chemical Concentrations, and Physical Hazards Ranking

This appendix presents radiological and chemical concentrations from EDF-326 and EDF-264.[a] The physical hazards and overall ranking for the individual sites is based on the opinions of the evaluators, which may not be technically or factually correct. Prior to implementation of remediation at the specific sites, additional evaluation will be performed and more information may be collected to address any comments or issues.

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a. EDF-ER-264, 2001, "INEEL CERCLA Disposal Facility Design Inventory," Rev. 0, Environmental Restoration Program, Idaho National Engineering and Environmental Laboratory, Idaho Falls, July 2001.

EDF-ER-326, 2001, "ICDF Design Radiological Control Analysis (Draft Title II)," Rev. 0, Draft, Environmental Restoration Program, Idaho National Engineering and Environmental Laboratory, Idaho Falls, December 2001.

Table D-1. Radiological and chemical concentrations and physical hazard ranking.

Site	Radionuclide Contaminant Concentration Ranking[a]	Organic/Inorganic Contaminant Concentration Ranking[b]	Physical Hazards Ranking[c]	Overall Ranking[a,b,c]
CPP-01	1-3	8-10	9	4
CPP-03	6-7	8-10	10	8
CPP-04	1-3	8-10	9	4
CPP-05	1-3	8-10	9	4
CPP-08	4-5	8-10	10	6
CPP-09	4-5	8-10	3	3
CPP-10	4-5	8-10	3	3
CPP-11	6-7	6-7	9	8
CPP-13	4-5	6-7	10	6
CPP-14	8-10	6-7	4	6
CPP-19	1-3	6-7	4	2
CPP-34A/B	4-5	4-5	6	5
CPP-35	4-5	4-5	4	4
CPP-36	1-3	4-5	3	1
CPP-37a	8-10	6-7	10	9
CPP-37b	8-10	6-7	10	9
CPP-37c				
CPP-41a				
CPP-44	8-10	1-3	10	6
CPP-48	6-7	6-7	9	8
CPP-55	8-10	6-7	3	6
CPP-67	6-7	4-5	8	6
CPP-68				
CPP-91	1-3	4-5	10	4
CPP-92	4-5	6-7	10	6
CPP-93	8-10	6-7	10	8
CPP-97	6-7	6-7	10	8
CPP-98	6-7	6-7	10	8
CPP-99	6-7	6-7	10	8

a. Based on Cs-137 for external radiation hazard and Pu-238 for internal hazard (EDF-326).
b. Based on design inventory (EDF-264).
c. Information from site evaluation visit.